upon opening the shell, and, on candling such eggs after sealing, it is found that the size of the air chamber remains unchanged. With the old method we frequently had a mortality of 50 per cent or higher in the first twenty-four hours. With the new method the deaths during the first twenty-four hours are reduced almost to zero.

Embryos may die three to five days after the operation and for these later deaths we have not yet found the cause or causes.

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THE AMERICAN CHEMICAL SOCIETY. VIII

The composition of okra seed oil: GEORGE S. JAMIESON AND WALTER F. BAUGHMAN. (By title.) Several lots of the seed of the okra (*Abelmoschus esculentus*) were received at various times from E. A. McIllhenny of Avery Island, Louisiana. The seed were found to contain about 15 per cent. of oil. The oil expressed from the seeds by means of the expeller had a greenish yellow color. The results of the analysis of the four expressed okra seed oils are given in the following table:

Sample No.	1	2	3	4
Iodine No. (Hanus)	93.2	100.3	95.5	95.2
Saponification value	195.5	195.6	195.6	195.2
Polenske No.				0.23
Reichert Meissl No.				0.26
Acetyl value	23.9	16.2	11.5	21.4
Acid value		0.66	0.34	1.42
Specific gravity at 25° C.	0.9187	0.9182	0.9160	0.9172
Refractive index at 25° C.	1.4692	1.4693	1.4695	1.4702
Unsaponifiable matter, per cent.				0.37
Soluble acids		0.12	0.09	0.14
Insoluble acids, per cent.		95.90	96.27	96.20
Unsaturated acids, per cent.				67.33
Saturated acids, per cent.				29.22
Titer insoluble acids				38.5° C.

From the data obtained by a separation of the various fatty acids the percentages of the acid glycerides in the oil were calculated. The composition of the okra seed oil was found to be as follows:

		Per Cent.
Glycerides of	Palmitic acid	27.23
	Stearic acid	2.75
	Arachidic acid	0.05
	Oleic acid	43.74
	Linolic acid	26.62
	Unsaponifiable matter.	.37

The composition of the oil from the seed of the Hubbard squash: WALTER F. BAUGHMAN AND GEORGE S. JAMIESON. (By title.) The oil for this investigation was expressed from the seed of the Hubbard squash (*Curcurbita maxima*) by means of the expeller. A portion of the oil was refined by the well-known alkali process and bleached with fuller's earth. The crude oil had a brownish red color and the refined portion had a yellow color. Both crude and refined oils had a bland fatty taste. The following are the chemical and physical characteristics:

Specific gravity at 25°	.9179
Refractive index at 25°	1.4714
Iodine number (Hanus)	121.0
Saponification value	191.5
Reichert Meissl no.	0.37
Polenske no	0.39
Acetyl value	27.8
Acid value	0.5
Unsaponifiable matter	1.06
Soluble acids %	0.33
Insoluble acids %	94.66
(Solid) saturated acids %	18.37
(Liquid) unsaturated acids %	76.45
Titer (insoluble acids)	29.8° C.

The composition of Hubbard squash seed oil was found to be as follows:

		Per Cent.
Glycerides of	Palmitic acid	12.73
	Stearic acid	6.12
	Arachidic acid	0.04
	Oleic acid	36.58
	Linolic acid	43.34
	Unsaponifiable matter.	1.06

Notes on the composition of the sorghum plant: J. J. WILLAMAN, R. M. WEST, D. O. SPRIESTERSBACH AND G. E. HOLM. (By title.) The juice of sorghum cane contains a high percentage of non-

protein nitrogen compounds which give much trouble in the defecation of the juice for sirup. l-leucin, d-l-asparagin, glutamin and aspartic acid have been identified. The acids found in the juice are aconitic, citric, oxalic, tartaric and malic. The hexoses decrease, and sucrose increases, as maturity approaches. In northern-grown cane the sucrose-hexose ratio is considerably lower than in southern-grown cane, and the total sugars are also much less. During the pre-maturation period the sorghum plant lays down a protein-cellulose framework, which is filled in with carbohydrate during the final maturation period. This carbohydrate is starch in the case of the seed head, and sucrose in the stalk. The removal of the seed heads prior to maturity hastens the production of sucrose in the stalk, but does not affect the total amount formed.

The physiology of germinating Juniperus seeds: D. A. Pack. (By title.) The *Juniperus* seed fails to germinate when put under ordinary germinating conditions. The changes, that prepare this seed for germination, are brought about by storing at 5° C. These changes are characterized as follows: an early and complete imbibition of water; a slow increase of the H^+ concentration and total acid; evident changes in the stored food material; very slight increase of the respiration and oxidase activity; slow enlargement of the embryo with the development of internal stress; steady decrease in the viscosity of the seed coat; marked increase in catalase activity; and an increase in the vitality of the seed. A good percentage of germination follows at once upon the completion of these changes.

The biochemist on the hospital staff: Frederick S. Hammett. The paper pointed out the advantage which would accrue to medicine if the hospital biochemist were regarded as a coordinate member of the hospital staff, a specialist in a special field, rather than as a mere technician who makes routine analyses.

A spectrographic study of certain biochemical color reactions: G. L. Wendt and T. Tadokoro. (By title.)

Studies of wheat flour grades. I. Electrical conductivity of water extracts: C. H. Bailey and F. A. Collatz. (By title.) The studies previously reported by one of us (Science, Vol. 47, pp. 645–647) were continued, and it was found that time and temperature of extraction affected the electrical conductivity of water extracts of wheat flour. The conductivity increased with the period of extraction, the proportional increase being greater when the extraction was conducted at lower temperatures, and also with the lower grades of flour. The relative conductivity increased as the temperature of extraction was raised above 0° until 60° was approached, when it began to diminish. A standard procedure was adopted for comparing a number of flours containing from 0.40 per cent. to 2.38 per cent. of ash. The flour: water (1: 10) mixture was held at 25° for exactly 30 minutes, centrifuged, and the conductivity of the clear liquid determined by means of a dipping electrode constructed for the purpose. When examined in this manner a remarkably close parallelism was observed between the conductivity and the ash content.

Studies of wheat flour grades. II. Buffer values of water extracts: C. H. Bailey and Anna Peterson. (By title.) The hydrogen-ion concentration of water extracts of various grades of wheat flour varies between rather narrow limits. Flours with an ash content of 0.45 per cent. yielded an extract (prepared by extracting a 1: 5 mixture for 60 minutes at 25°) of Ph = 6.1, while the extracts of flours containing from 1.2 per cent. to 1.6 per cent. of ash had a Ph = about 6.4. The buffer values of the extracts of these flours varied greatly, however. Thus the addition of 10 c.c. of N/50 NaOH increased the Ph of patent flour extracts 3.3 (*i. e.*, to about 9.4) while the extract of lower grades was increased in some instances only 0.6 to .9 in terms of Ph. The increase in Ph is thus inversely proportional to the ash content, and the ratios are quite exact. The buffer value of extracts uniformly prepared is indicative of the grade of sound flours milled from normal wheat.

The preparation of certain monocarboxylic acids from sugars: I. K. Phelps and W. T. McGeorge.

Charles L. Parsons,
Secretary

SCIENCE

A Weekly Journal devoted to the Advancement of Science, publishing the official notices and proceedings of the American Association for the Advancement of Science

Published every Friday by

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

NEW YORK, N. Y.

Entered in the post-office at Lancaster, Pa., as second class matter